

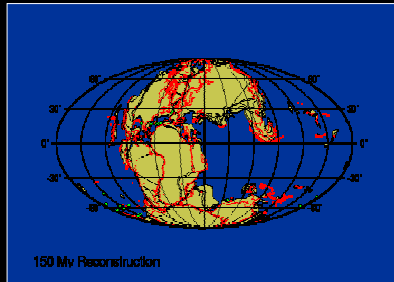
Review

What is SFS?

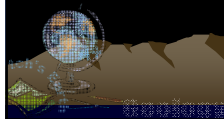
Who proposed SFS?

How did scientists learn about SFS?

What are the two pieces of evidence?

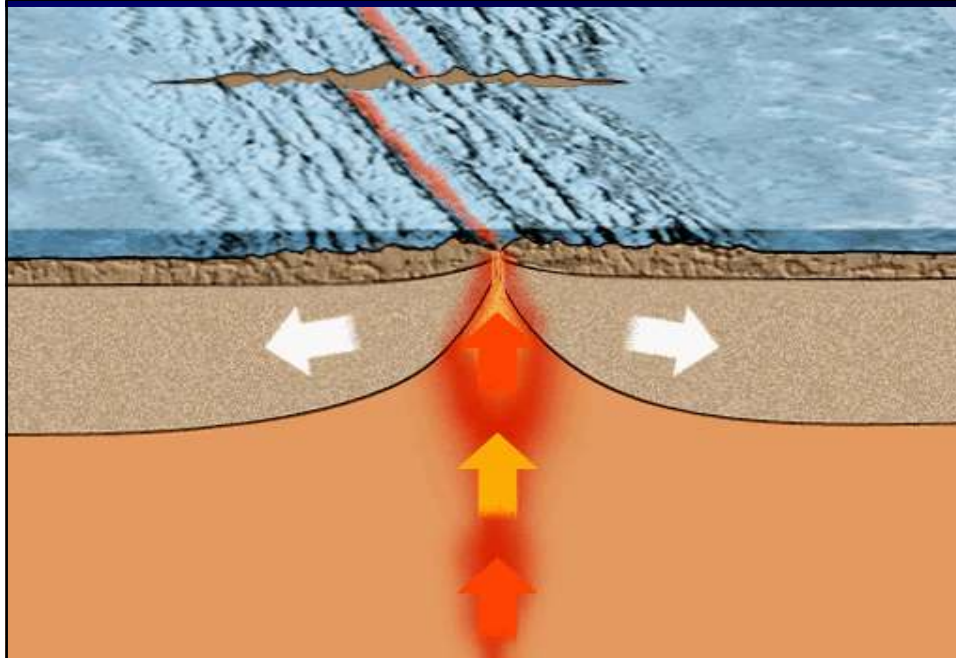


What did sea-floor spreading help to explain?



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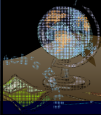
Review



Earthquake and Volcano Data

Scientists began to study SFS more and more.

They saw something interesting when they began to look at volcanoes and earthquakes.



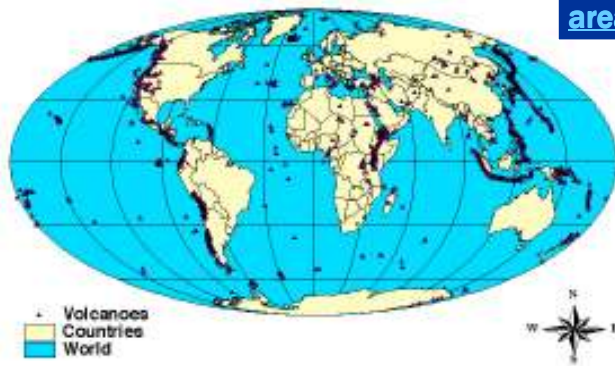
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Earthquake and Volcano Data

They plotted the locations of volcanoes and earthquakes on a big map.

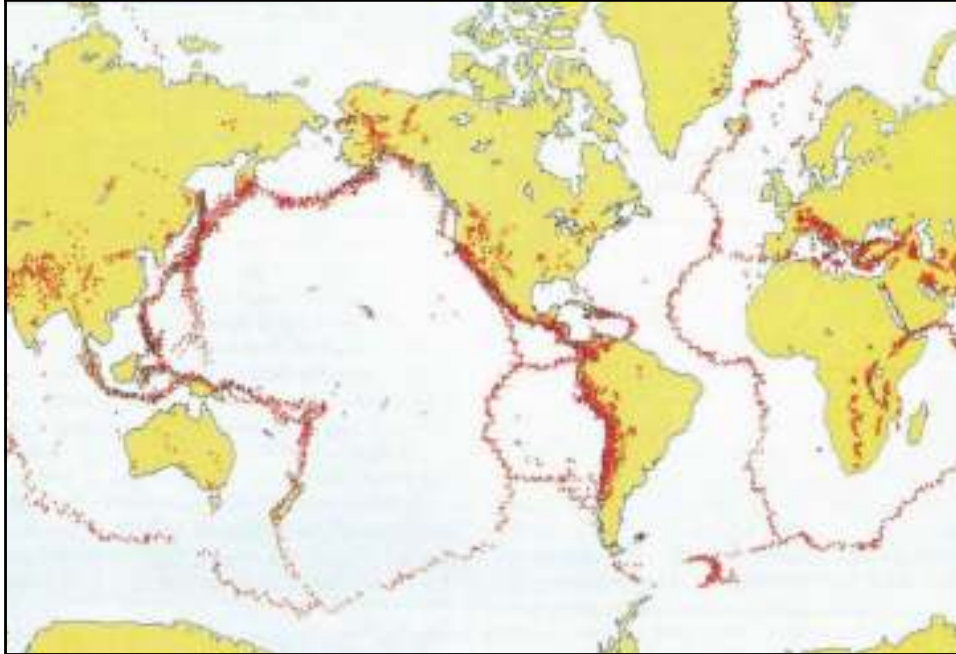
They noticed that all the earthquake and volcano points seem to be located in certain areas across the globe.

World Volcano Distribution



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Earthquake and Volcano Data



What does this all mean?

Scientists used [Wegner's](#) idea of [continental drift](#)...
They also used [Hess's](#) idea of [Sea-floor spreading](#)...
They finally incorporated the [earthquake and volcano data](#)...

... to come up with the theory of [Plate Tectonics](#).

Plate Tectonics

- Proposed in 1965 by [Tuzo Wilson](#).
- Earth's [crust is broken into pieces called "lithospheric plates."](#)
- The [plates move](#) and cause all types of [geologic activity](#).
(earthquakes and volcanoes)

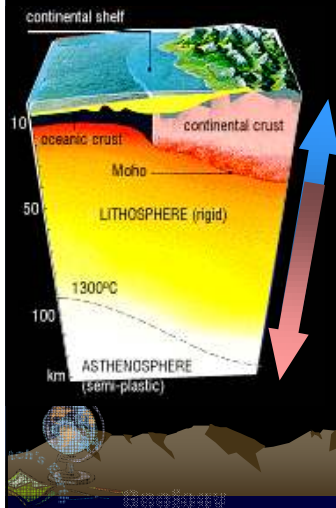


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First - Let's break things down a bit more...

Lithosphere: the ridged crust and upper part of the mantle.

- Brittle
- Breaks very easily



Asthenosphere: the upper mantle

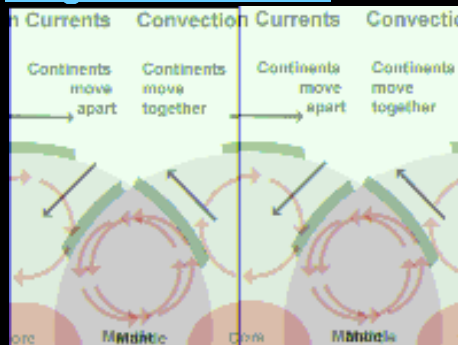
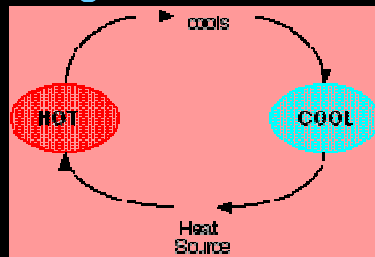
- Hot and plastic-like
- Flows easily

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What does this all mean?

What actually happens is a combination of Wegener and Hess's ideas.

- Magma under the crust is rising due to convection.



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What does this all mean?

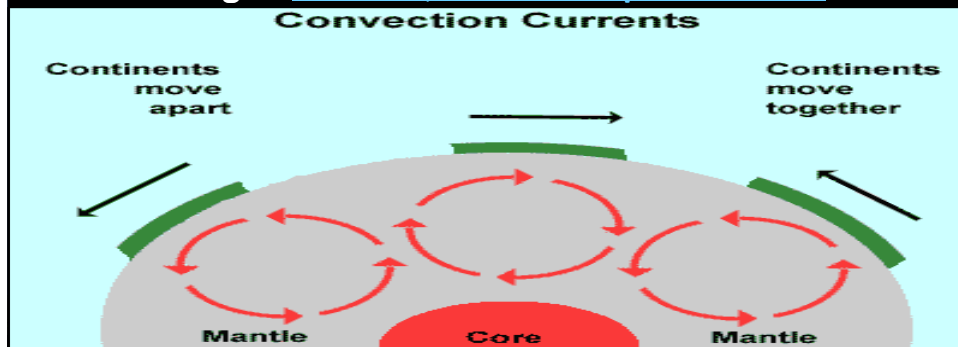
- The crust is broken into 7 large plates, and 20 smaller plates.
- We live on the North America Plate.
- Our neighbors are the Pacific Plate and the African Plate.



What does this all mean?

What actually happens is a combination of Wegener and Hess's ideas.

- Magma under the crust is rising due to convection.
- Magma pushes up and cracks the brittle lithosphere into plates.
- As the magma circulates, it causes the plates to move.

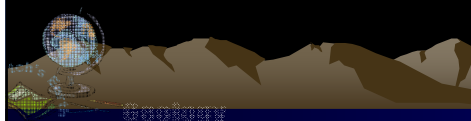


What does this all mean?

What actually happens is a combination of Wegener and Hess's ideas.

- Magma under the crust is rising due to convection.
- Magma pushes up and cracks the brittle lithosphere into plates.
- As the magma circulates, it causes the plates to move.
- The plates "float" along on the circulating asthenosphere.

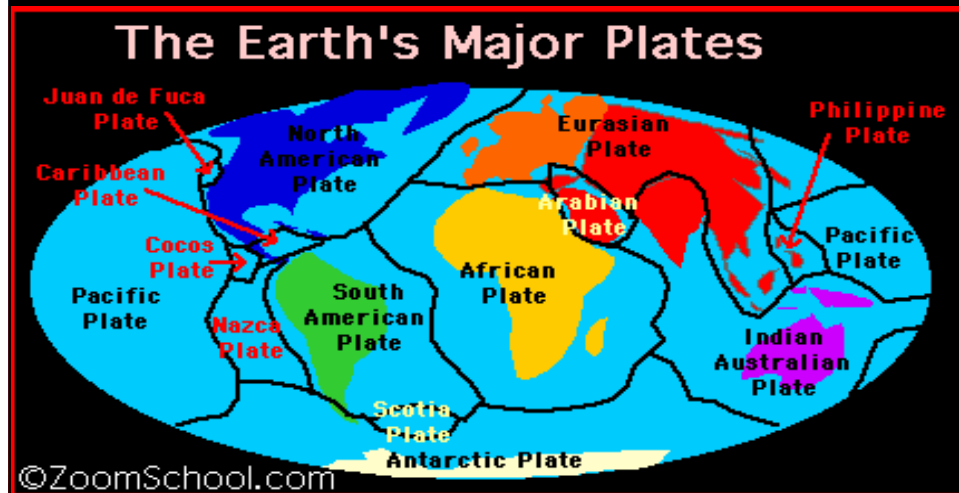
Similar to ice sheets floating on water. →



In what ways do the plate interact and move?

- The plates have boundaries just like continents do.
- As the plates move, they affect one another.

Example: bumping into one another...



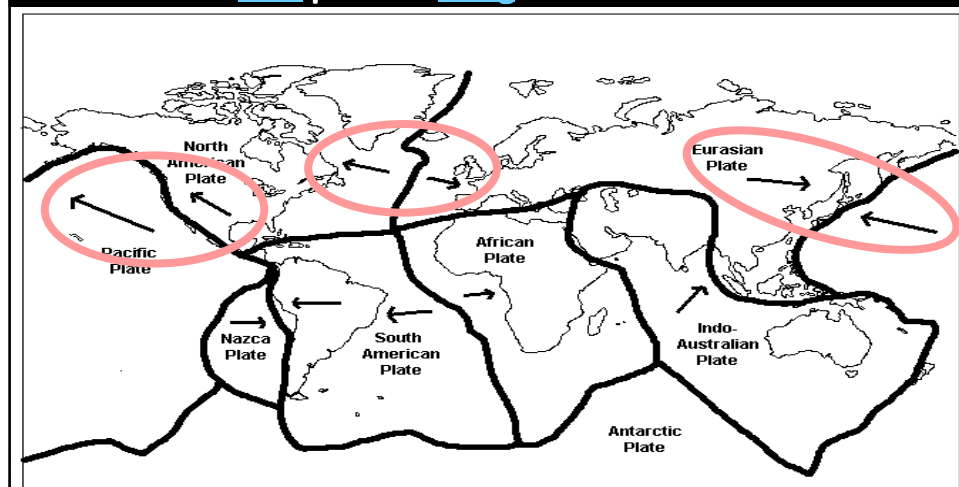
DIVIDE - COLLIDE - SLIDE

There are three types of motion.

Plates can divide apart and move away from each other.

Plates can collide together and move closer.

Plates can slide past and along each other.



In what ways do the plate interact and move?

As the **plates interact** with one another they cause such things as **earthquakes, volcanoes, and mountain building**.

